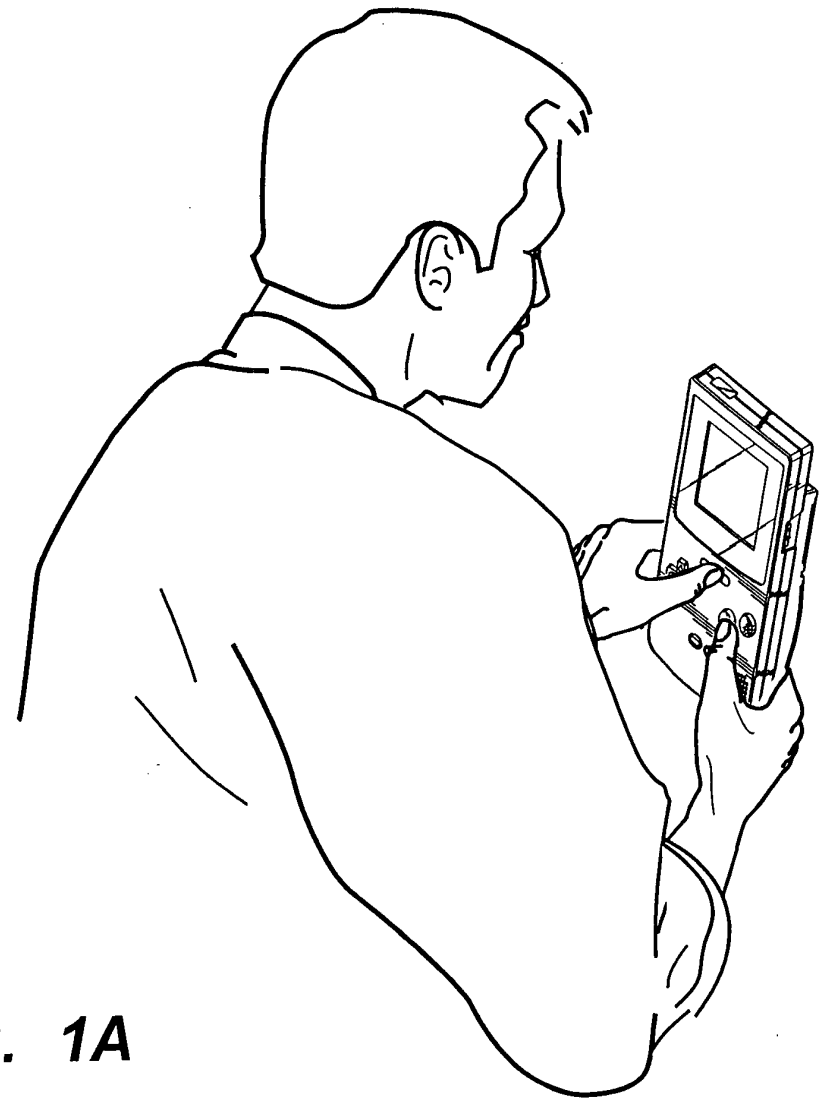


Fig. 1A

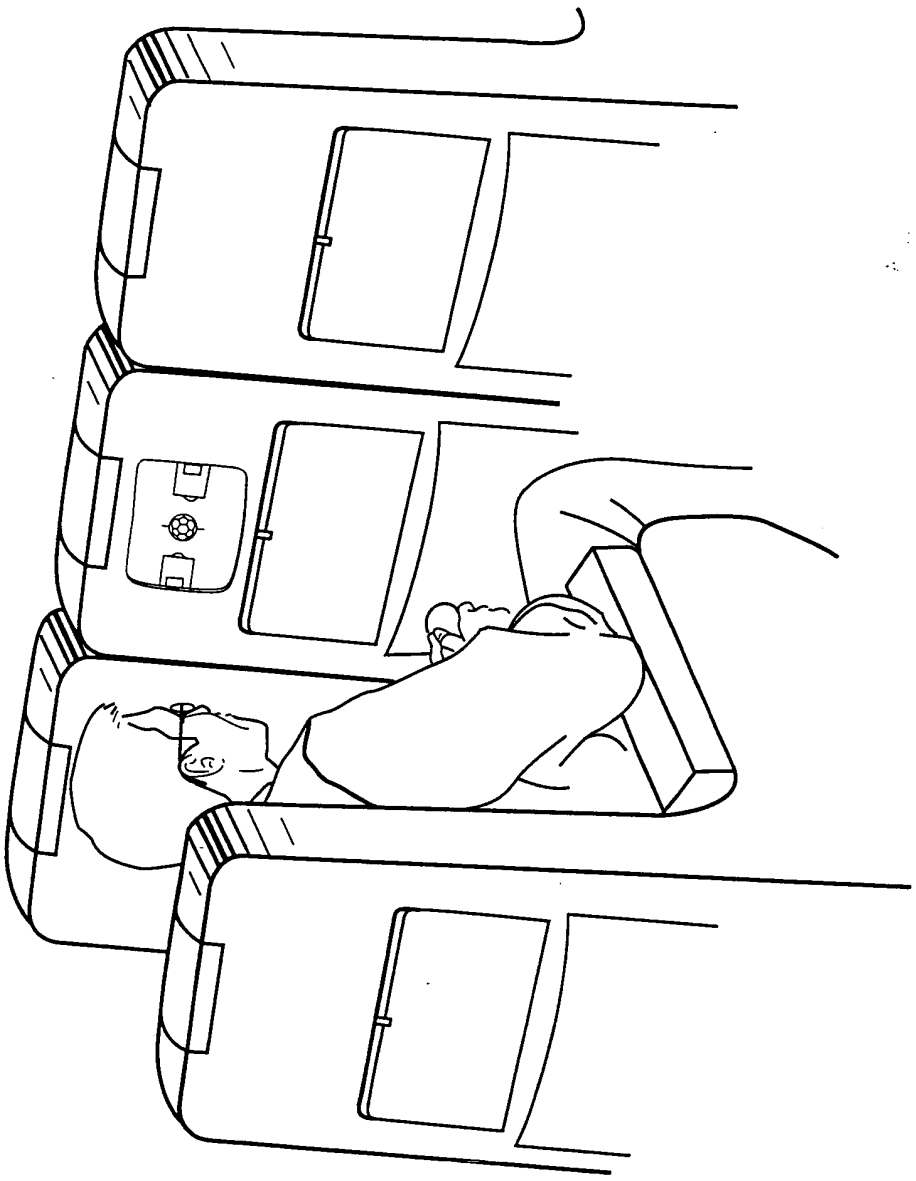


Fig. 1B

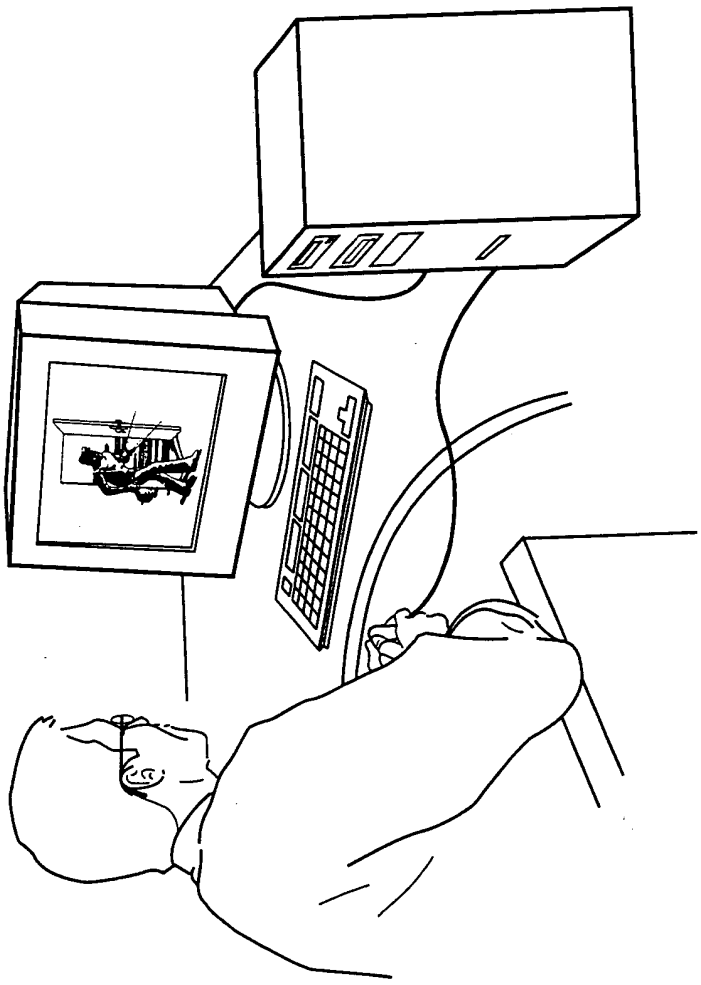


Fig. 1C

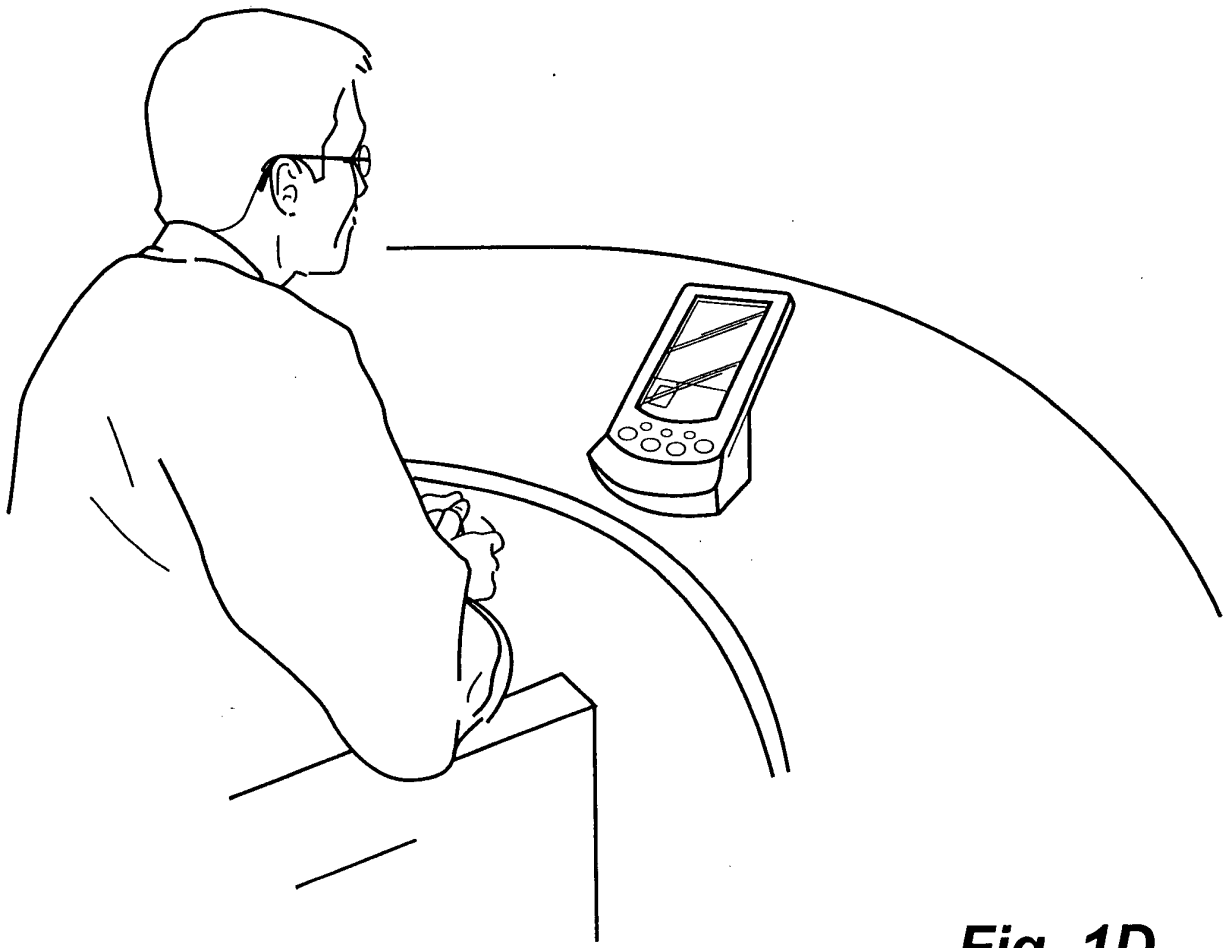


Fig. 1D

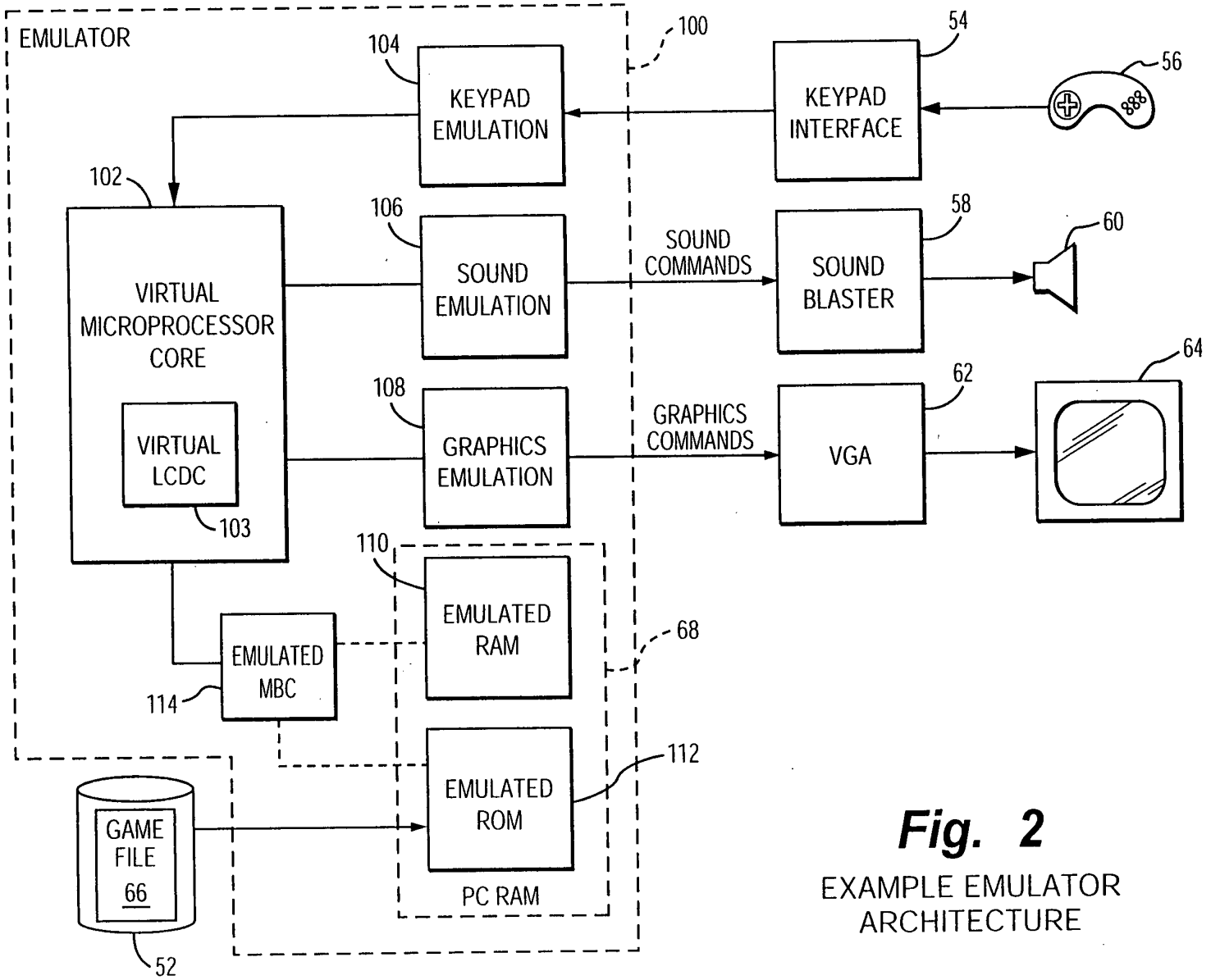


Fig. 2

EXAMPLE EMULATOR ARCHITECTURE

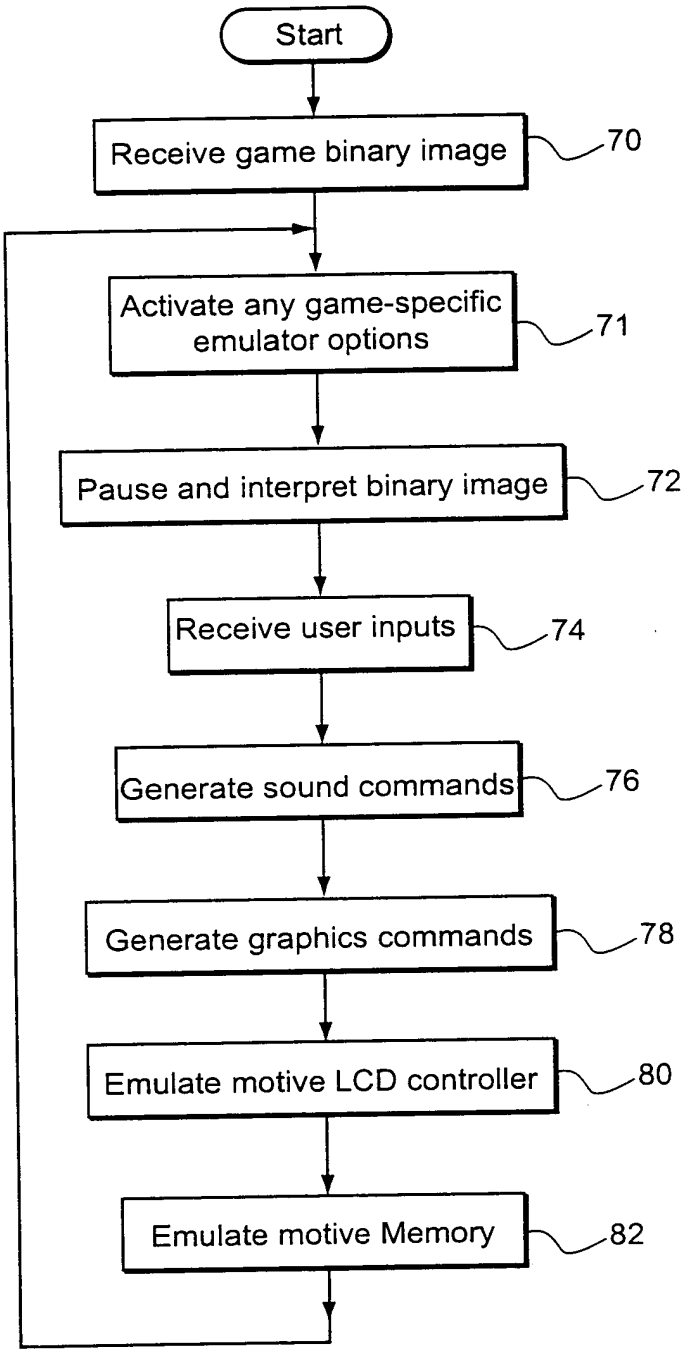

Start
Receive game binary image
70
Activate any game-specific emulator options
71
Pause and interpret binary image
72
Receive user inputs
74
Generate sound commands
76
Generate graphics commands
78
Emulate motive LCD controller
80
Emulate motive Memory
82

Fig. 2A

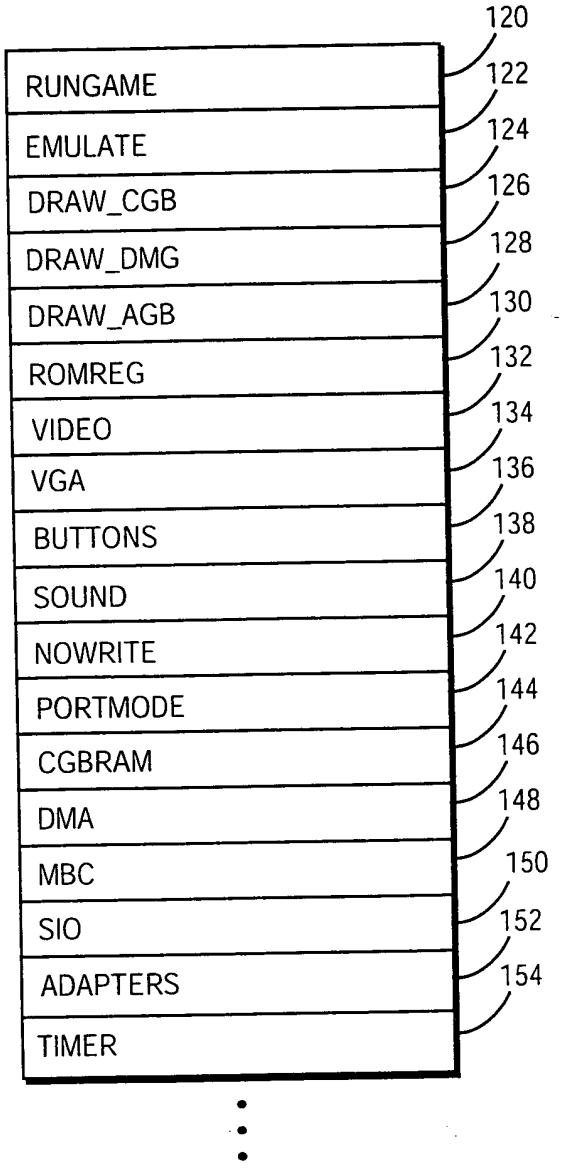


Fig. 3 EXAMPLE FUNCTIONAL MODULES

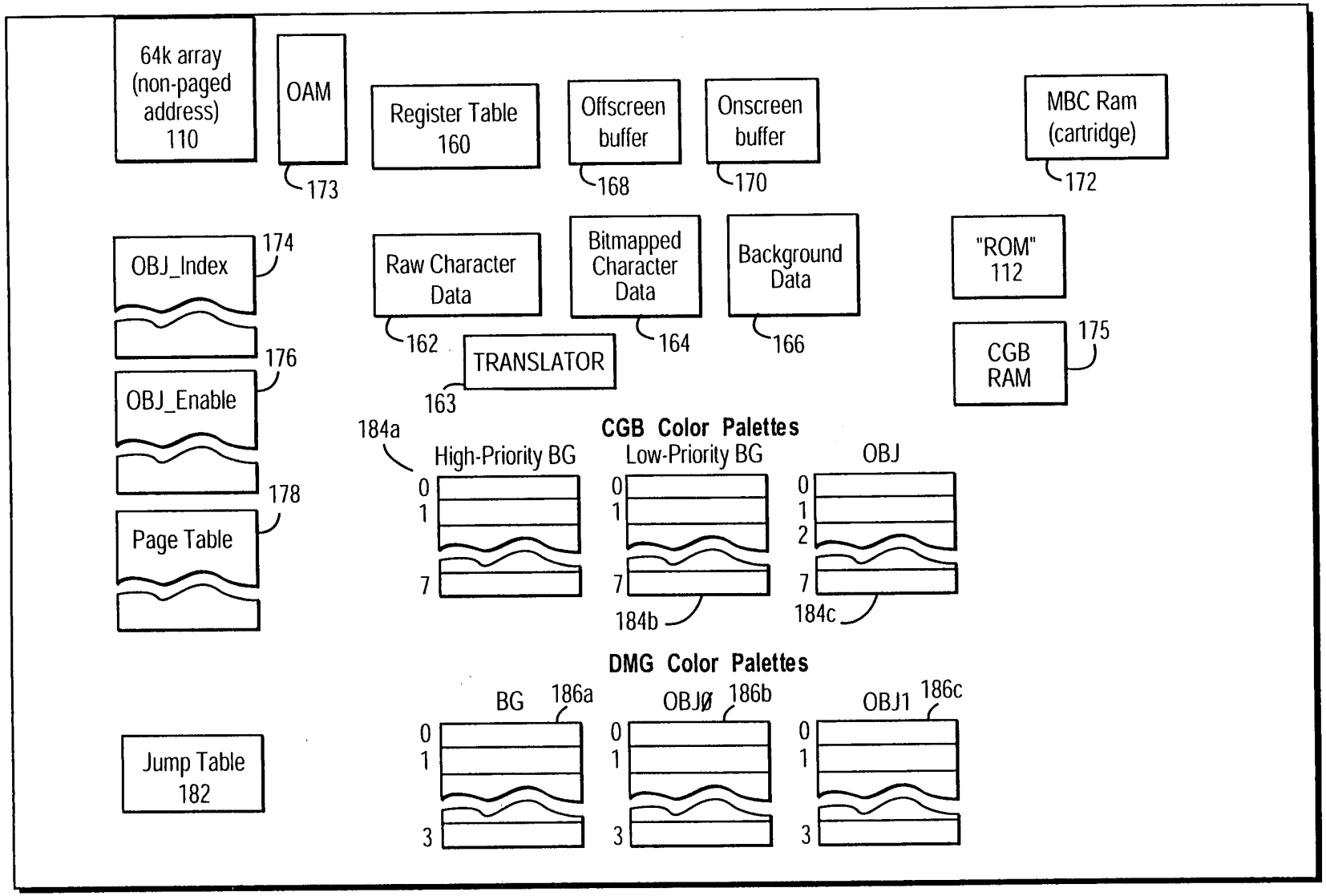


Fig. 4

EXAMPLE MEMORY OBJECTS

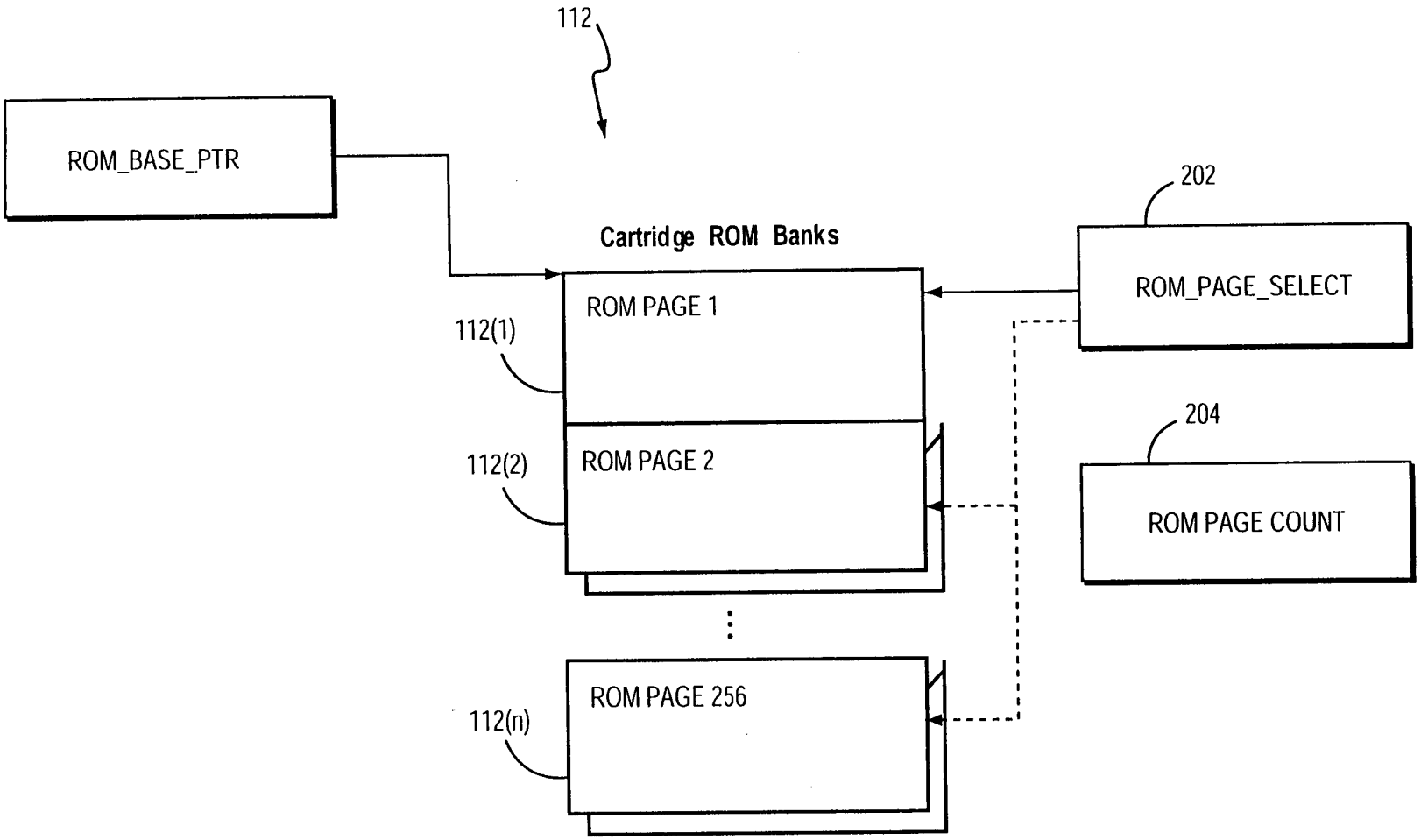


Fig. 5

EXAMPLE EMULATED CARTRIDGE ROM

Fig. 6

Compatibility modes:

CGB_INCOMPATIBLE
CGB_COMPATIBLE
CGB_EXCLUSIVE
AGB

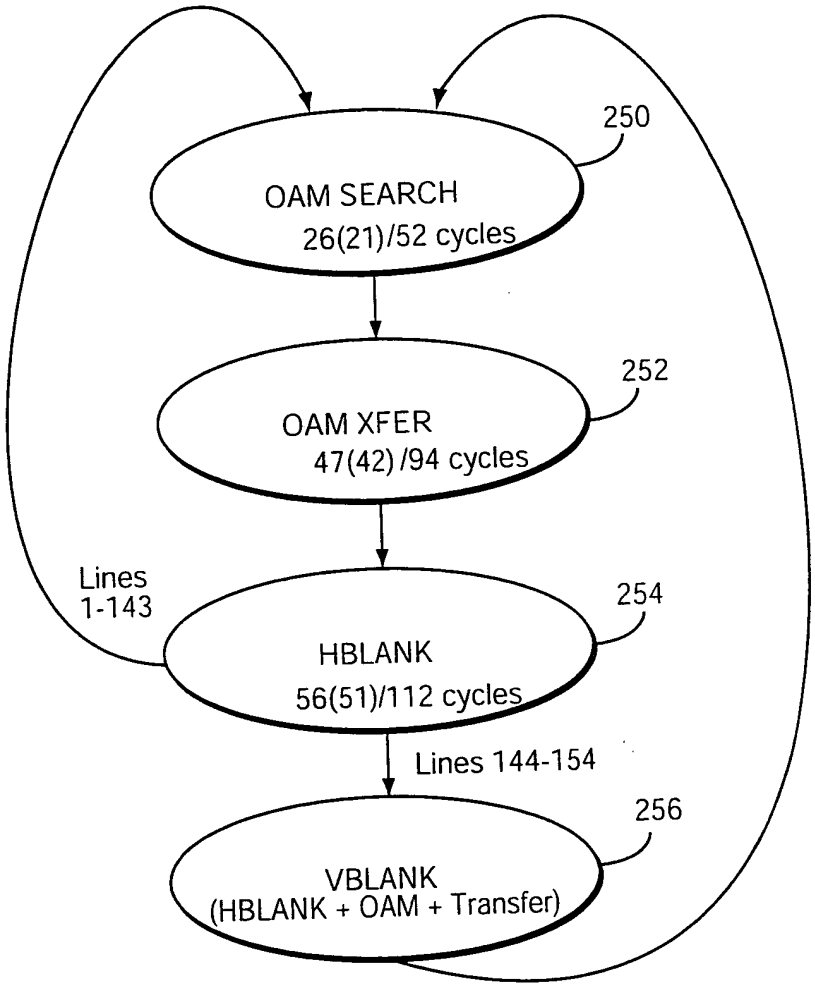
Registration Data Locations:

ROMREG_CGB
ROMREG_CARTRIDGE
ROMREG_ROM
ROMREG_RAM

Fig. 7

Fig. 8

EXAMPLE VIRTUAL LCD CONTROLLER STATE MACHINE



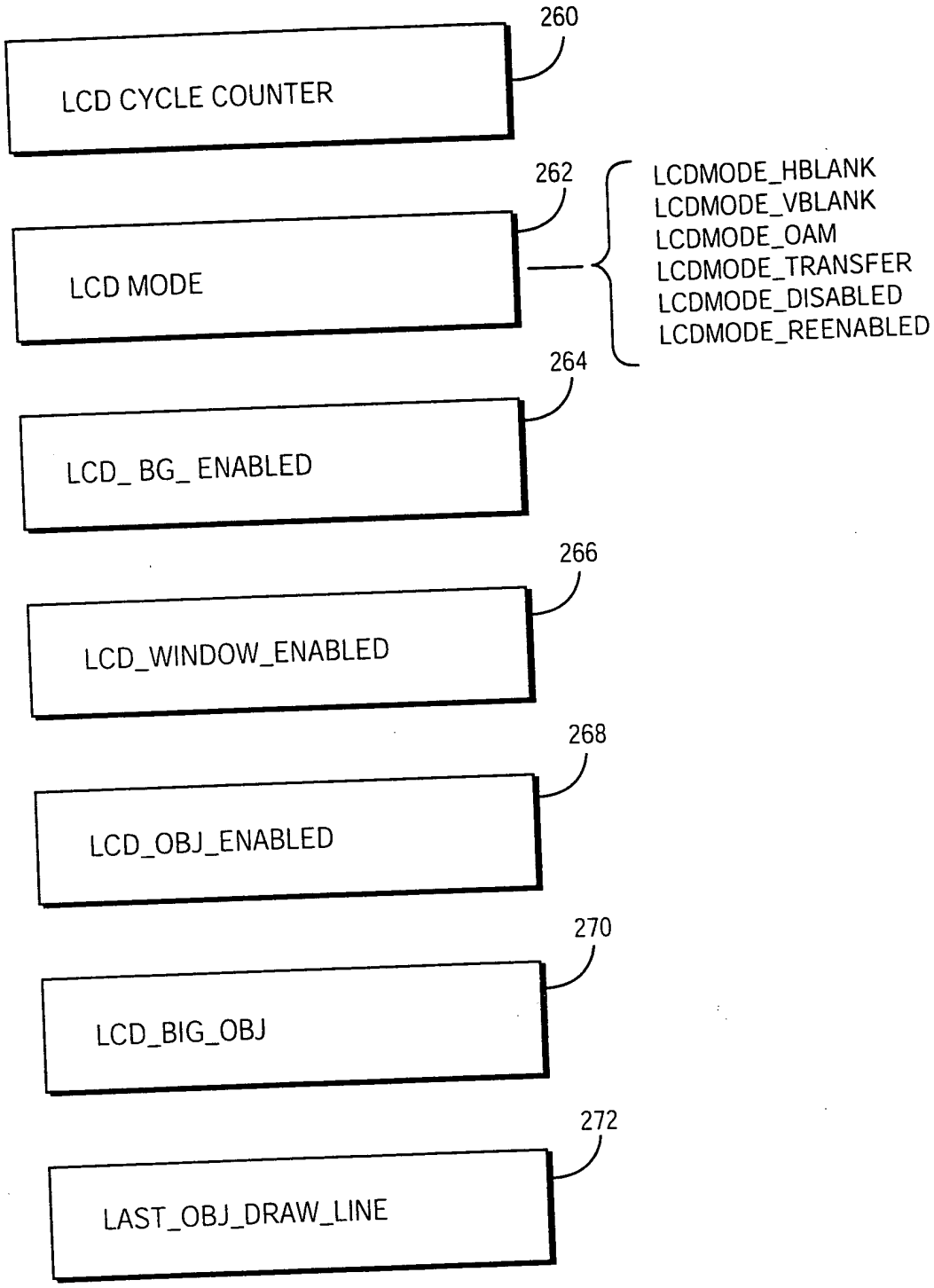


Fig. 9A

EXAMPLE LCD CONTROLLER EMULATION

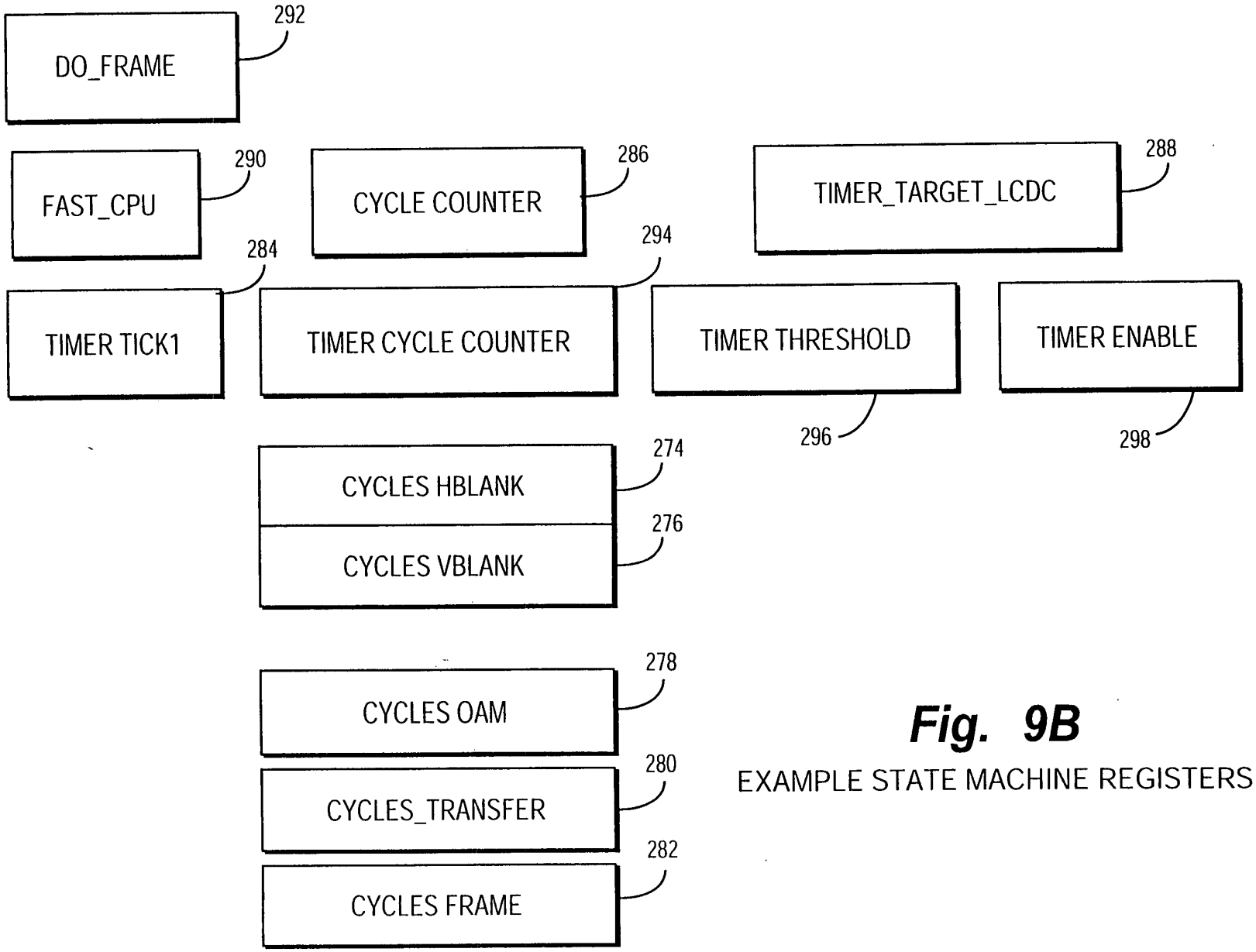


Fig. 9B

EXAMPLE STATE MACHINE REGISTERS

Cycles per Event	DMG	CGB
HBLANK	56 (51)	112
OAM SEARCH	26 (21)	52
OAM TRANSFER	47 (42)	94
VBLANK	(HBLANK + OAM + TRANSFER)	(HBLANK + OAM + TRANSFER - 30)
FRAME	(VBLANK * 154)	(VBLANK * 154)

Fig. 9C

EXAMPLE STATE MACHINE CYCLE PARAMETERS

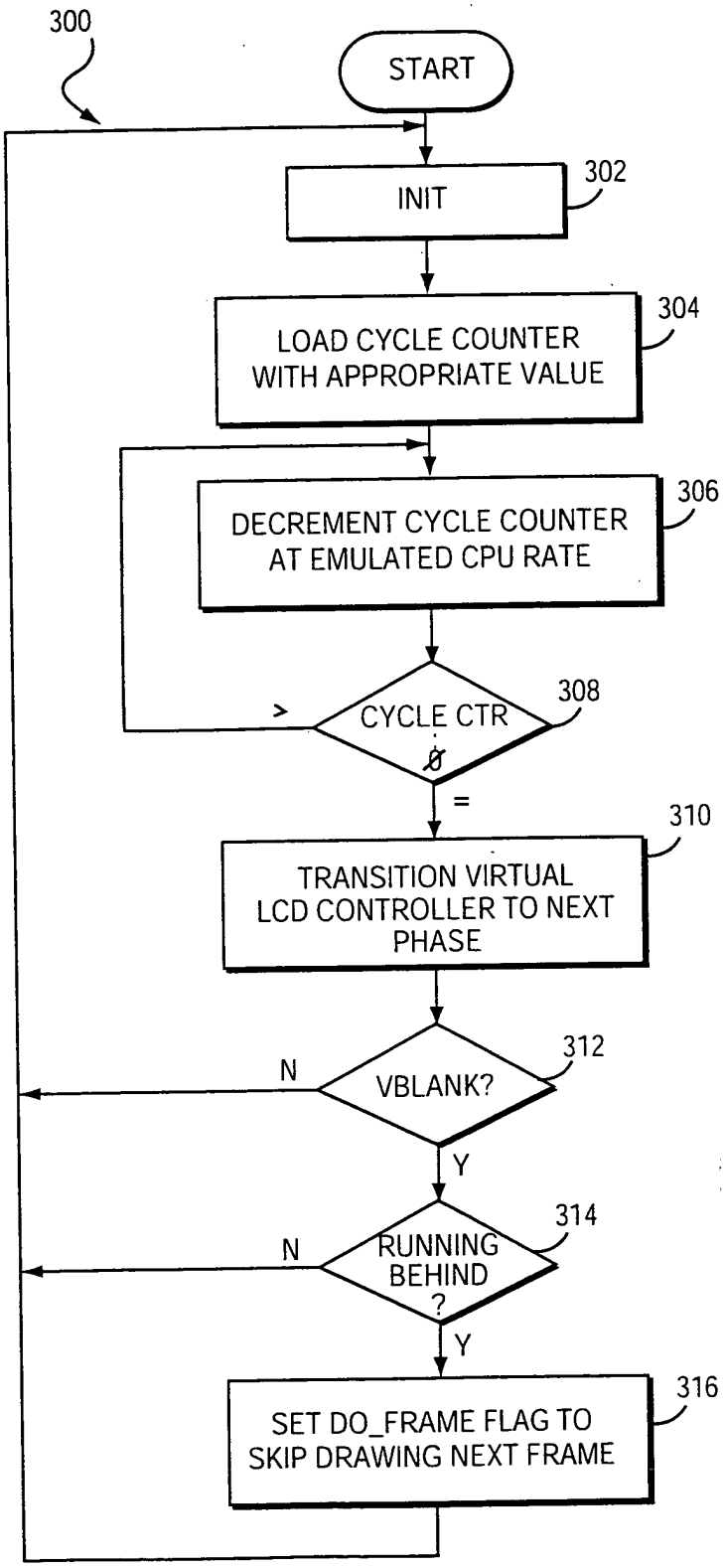


Fig. 10

EXAMPLE LIQUID CRYSTAL DISPLAY CONTROLLER

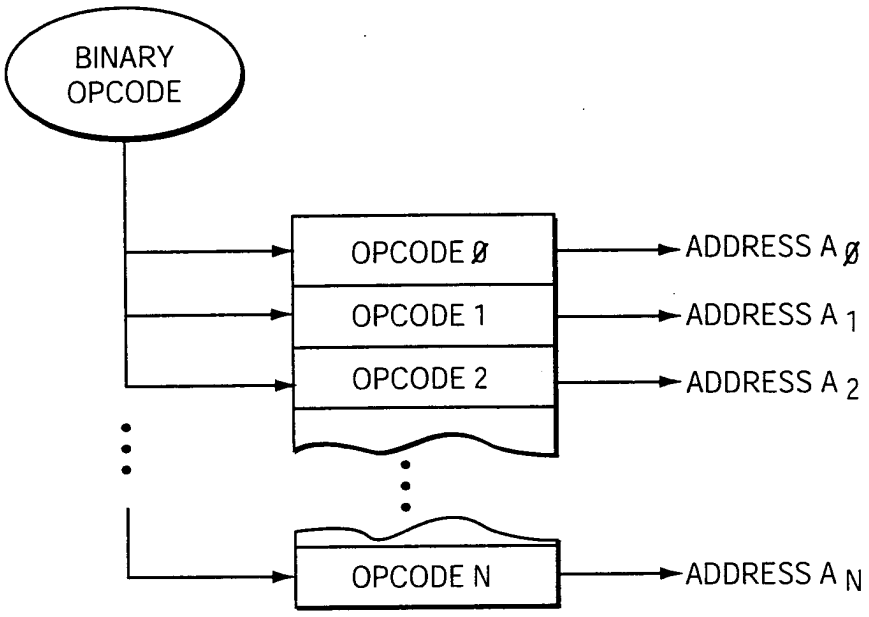


Fig. 11

EXAMPLE OPCODE JUMP TABLE

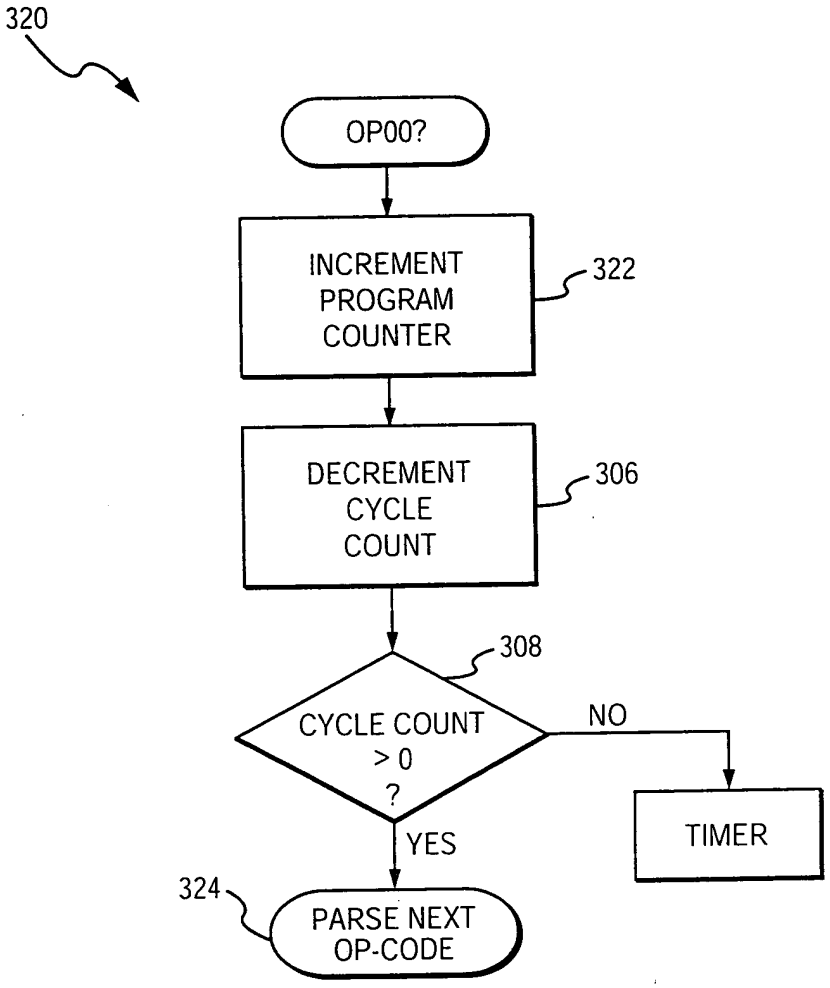


Fig. 12

EXAMPLE NOP EMULATION

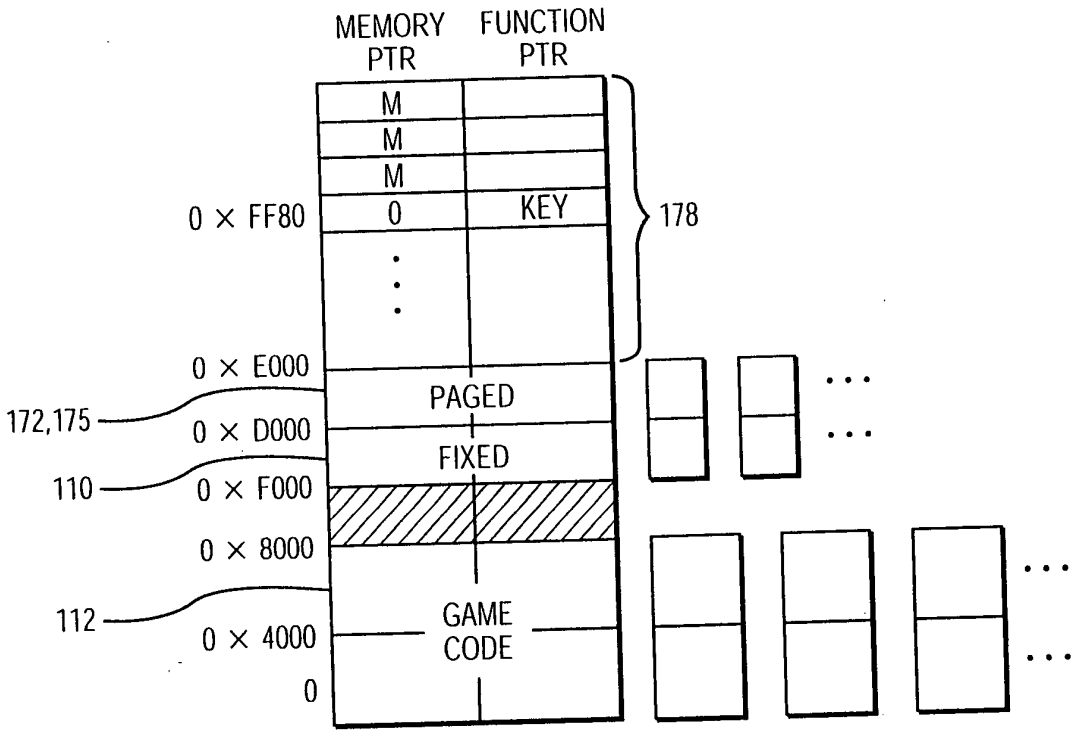


Fig. 13

EXAMPLE PAGE TABLE

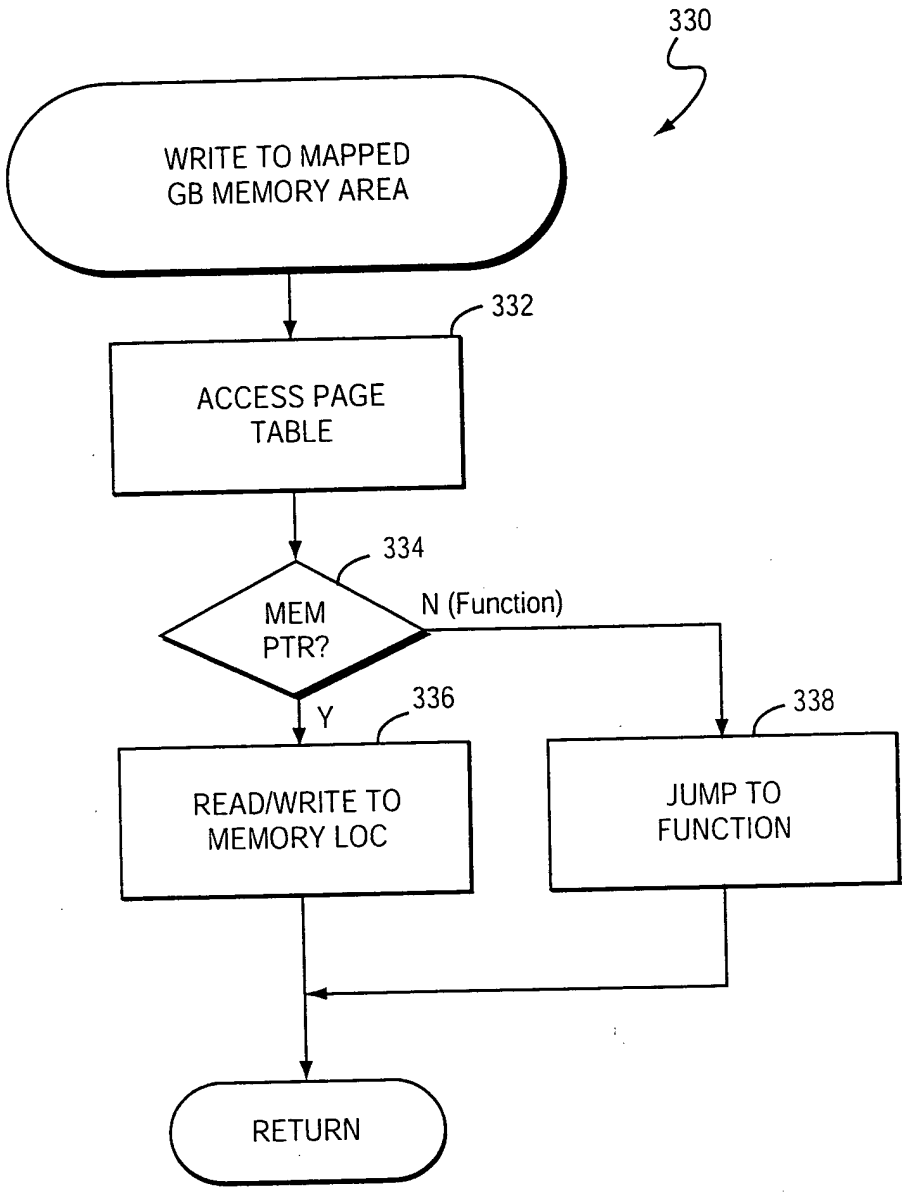


Fig. 14

EXAMPLE MEMORY ACCESS OPERATION

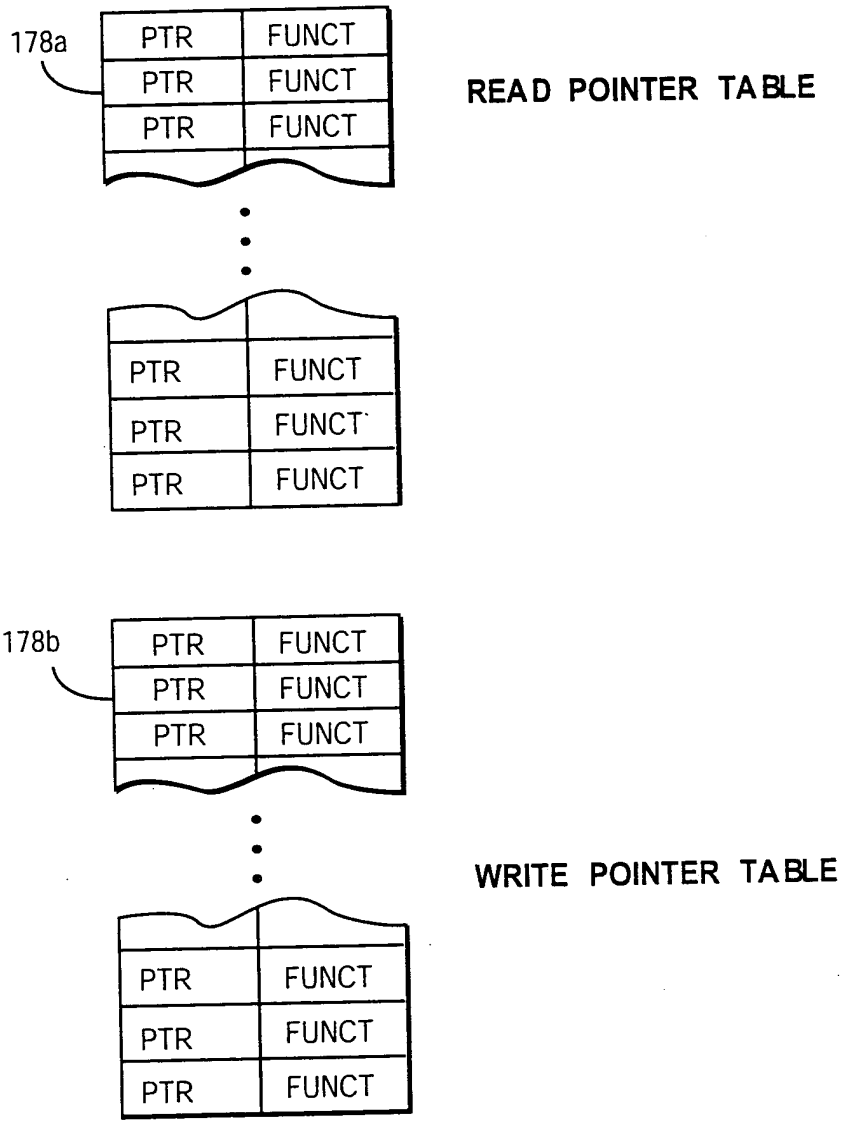


Fig. 15

EXAMPLE READ + WRITE TABLES

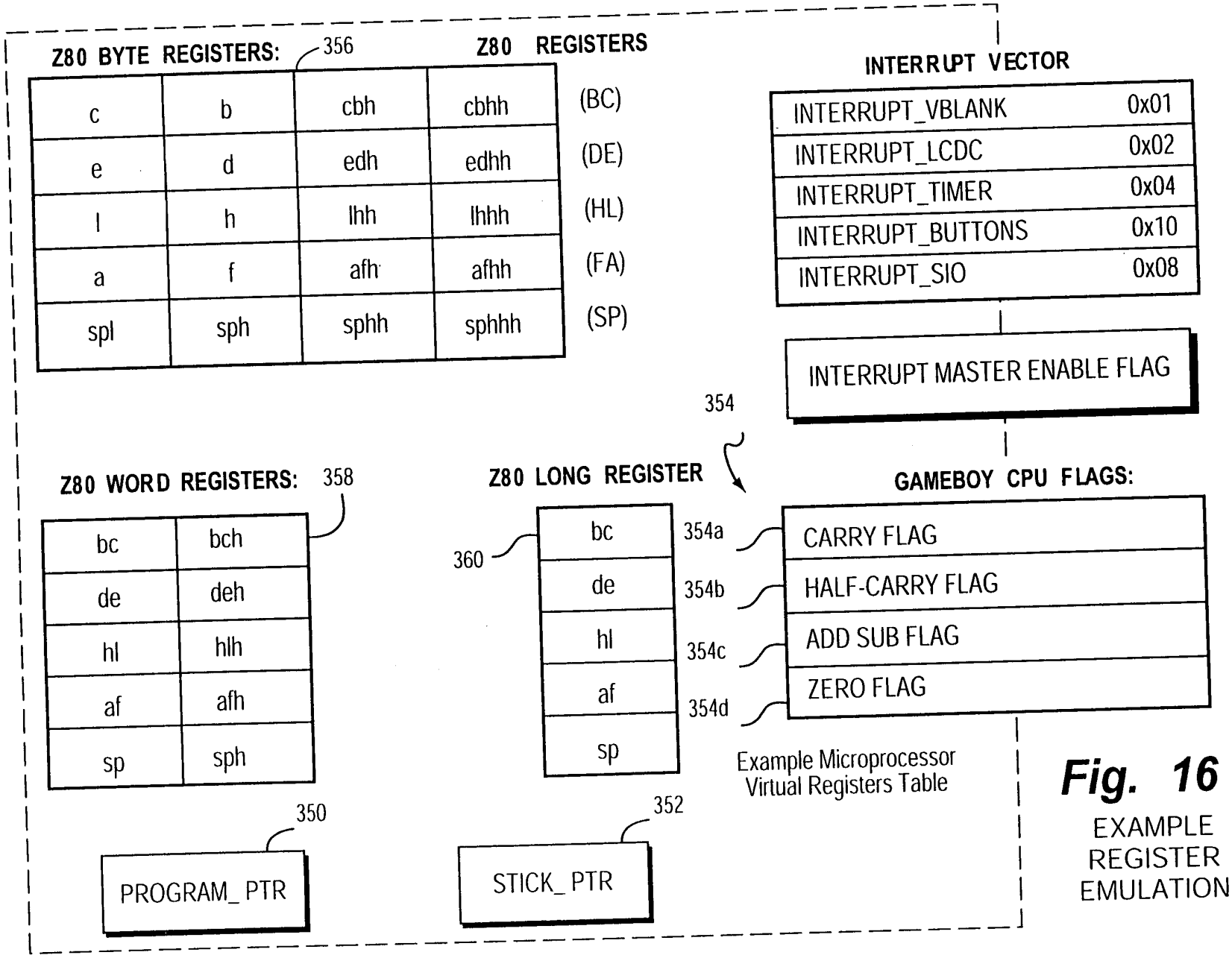


Fig. 16

EXAMPLE REGISTER EMULATION

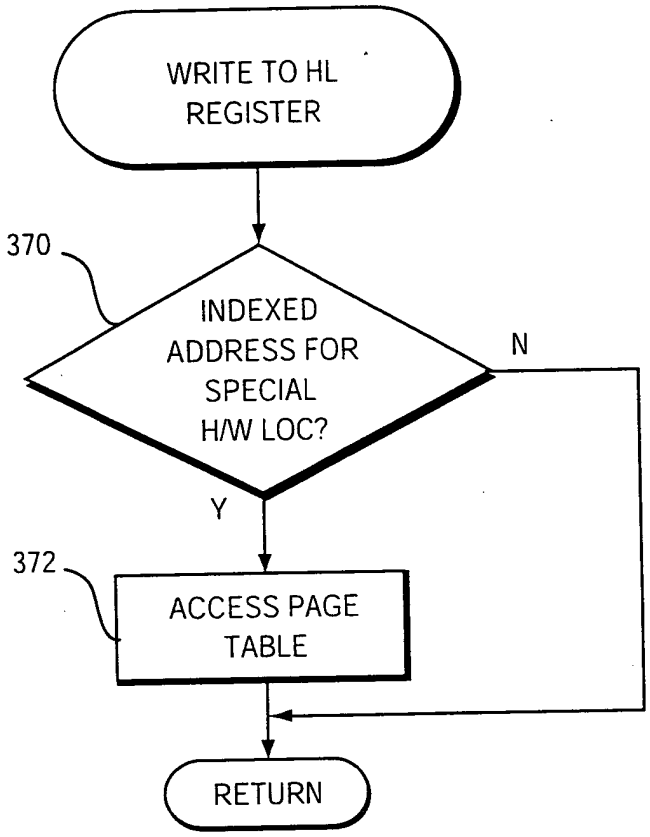


Fig. 17

EXAMPLE HL REGISTER
WRITE OPTIMIZATION

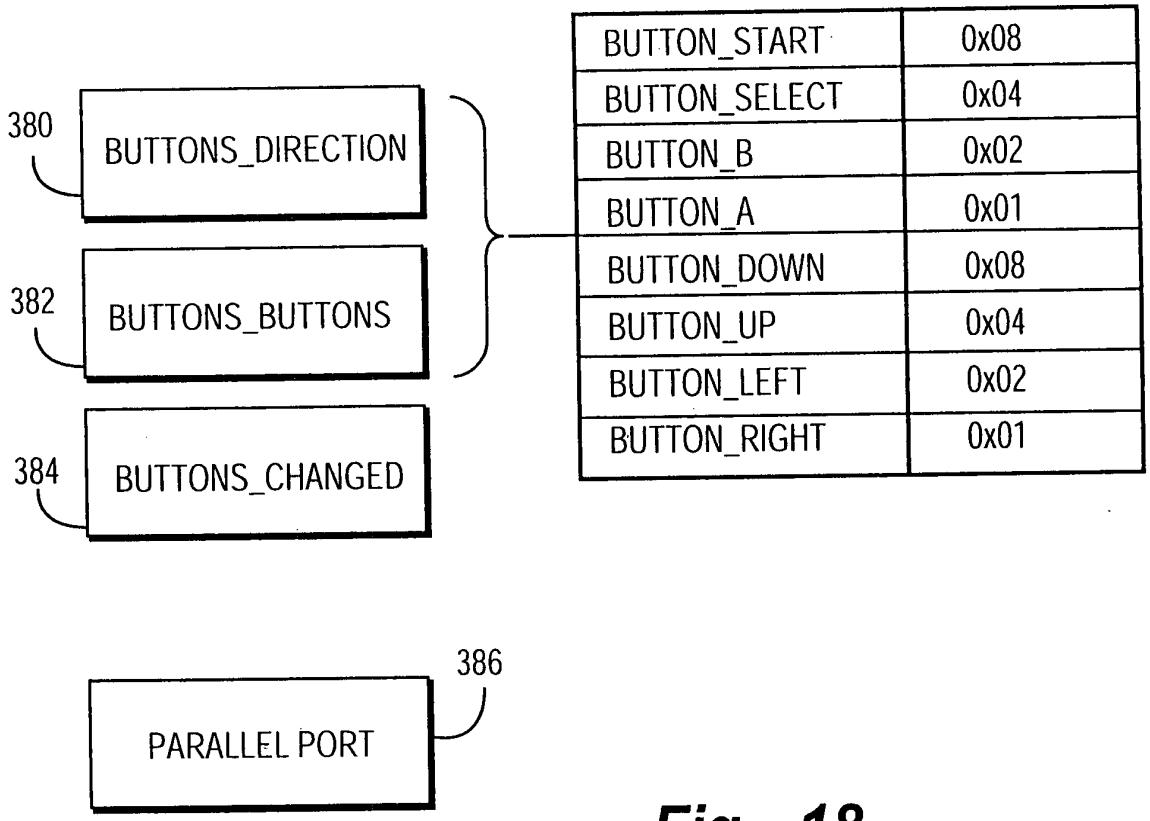


Fig. 18

EXAMPLE CONTROLLER EMULATION
(BUTTON STATE)

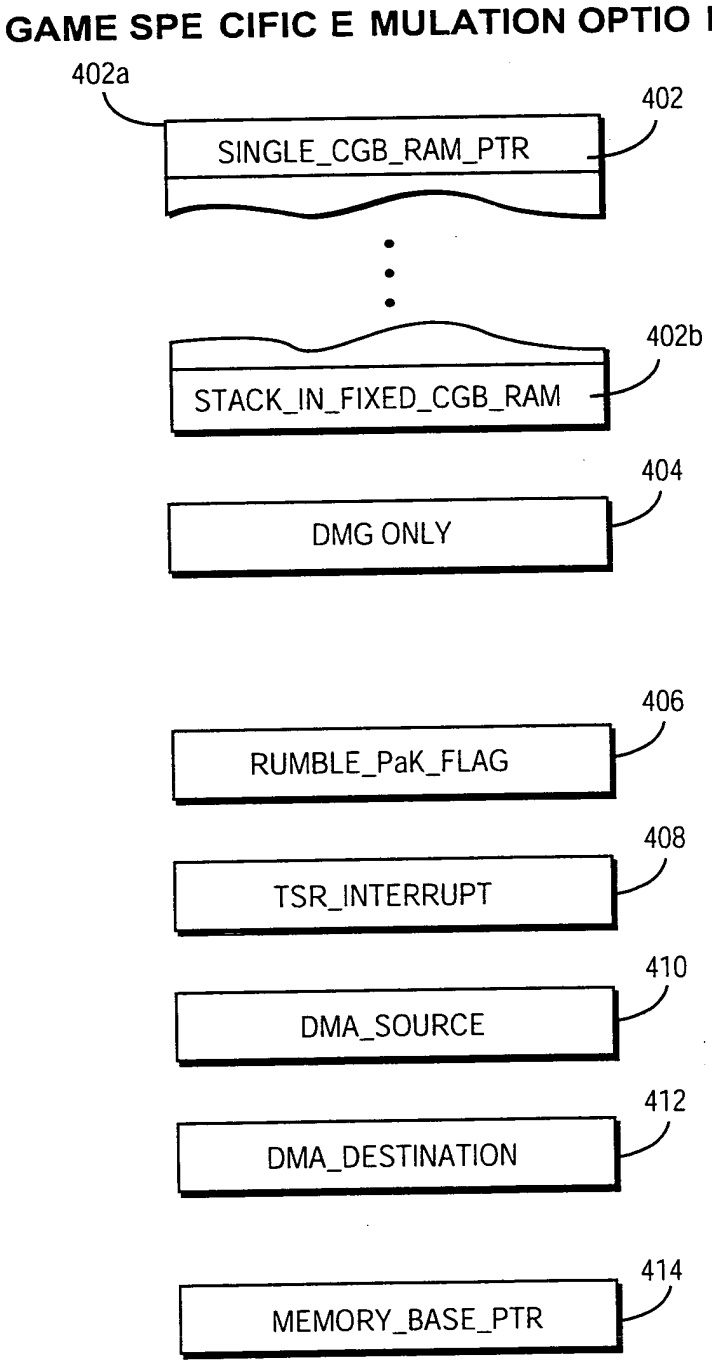


Fig. 19A

EXAMPLE VIRTUAL MICROPROCESSOR DATA STRUCTURES

REGISTERS	
P1	0xFF00
SB	0xFF01
SC	0xFF02
DIV	0xFF04
TIMA	0xFF05
TMA	0xFF06
TAC	0xFF07
IF	0xFF0F
NR10	0xFF10
NR11	0xFF11
NR12	0xFF12
NR13	0xFF13
NR14	0xFF14
NR21	0xFF16
NR22	0xFF17
NR23	0xFF18
NR24	0xFF19
NR30	0xFF1A
NR31	0xFF1B
NR32	0xFF1C
NR33	0xFF1D
NR34	0xFF1E
NR41	0xFF20
NR42	0xFF21
NR43	0xFF22
NR44	0xFF23
NR50	0xFF24
NR51	0xFF25
NR52	0xFF26
LCDC	0xFF40
STAT	0xFF41
SCY	0xFF42
SCX	0xFF43
LY	0xFF44
LYC	0xFF45
DMA	0xFF46
BGP	0xFF47
OBP0	0xFF48
OBP1	0xFF49
WY	0xFF4A
WX	0xFF4B
KEY1	0xFF4D
VBK	0xFF4F
HDMA1	0xFF51
HDMA2	0xFF52
HDMA3	0xFF53
HDMA4	0xFF54
HDMA5	0xFF55
BCPS	0xFF68
BCPD	0xFF69
OCPS	0xFF6A
OCPD	0xFF6B
SVBK	0xFF70
IE	0xFFFF

LCDC_BG		0X01
LCDC_OBJ	0x02	
LCDC_OBJSIZE	0x04	
LCDC_BGCODE		0x08
LCDC_BGCHR		0x10
LCDC_WINDOW		0x20
LCDC_WINCODE	0x40	
LCDC_CONTROL	0x80	

STAT_MATCH		0X04
STAT_INT_HBLANK	0x08	
STAT_INT_VBLANK	0x10	
STAT_INT_OAM	0x20	
STAT_INT_MATCH	0x40	

Fig. 19B

EXAMPLE VIRTUAL
MICROPROCESSOR DATA STRUCTURES

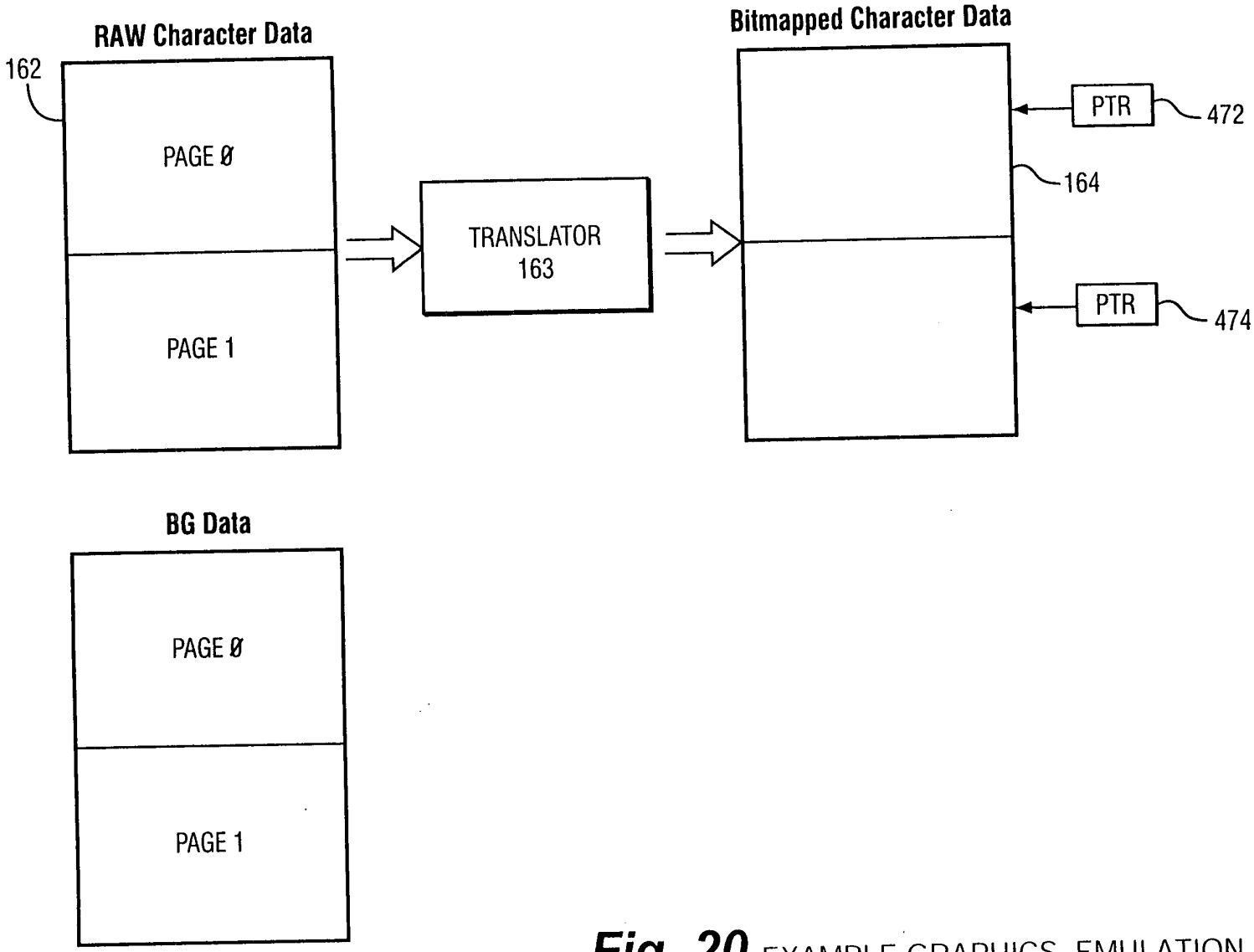


Fig. 20 EXAMPLE GRAPHICS EMULATION

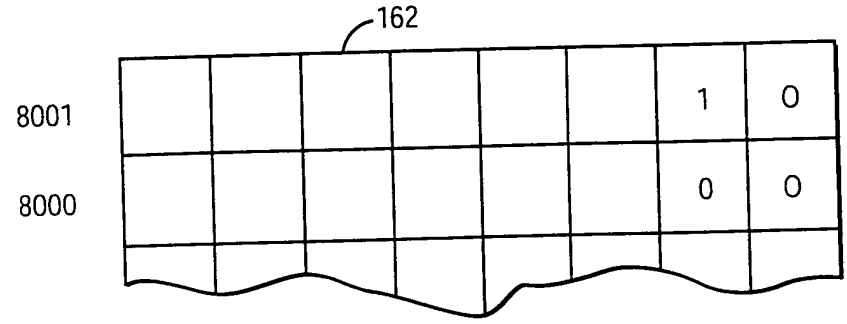


Fig. 21

EXAMPLE CHARACTER DATA

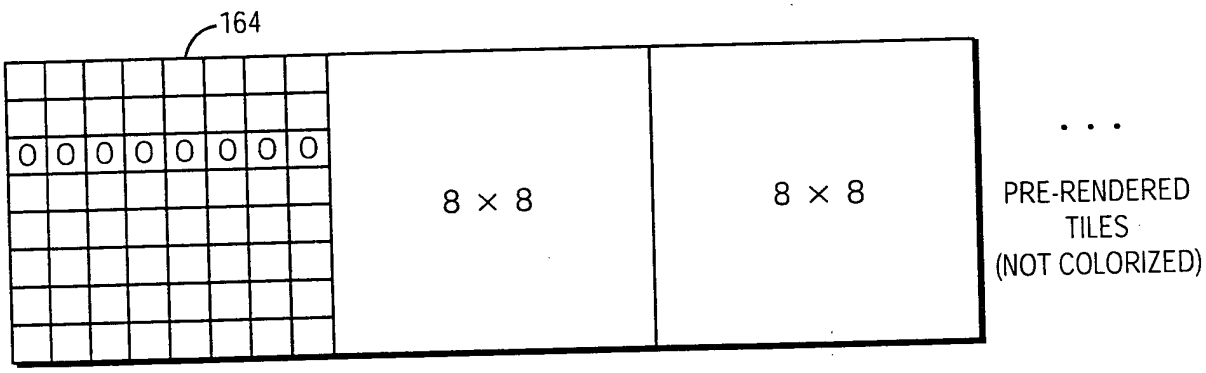


Fig. 22

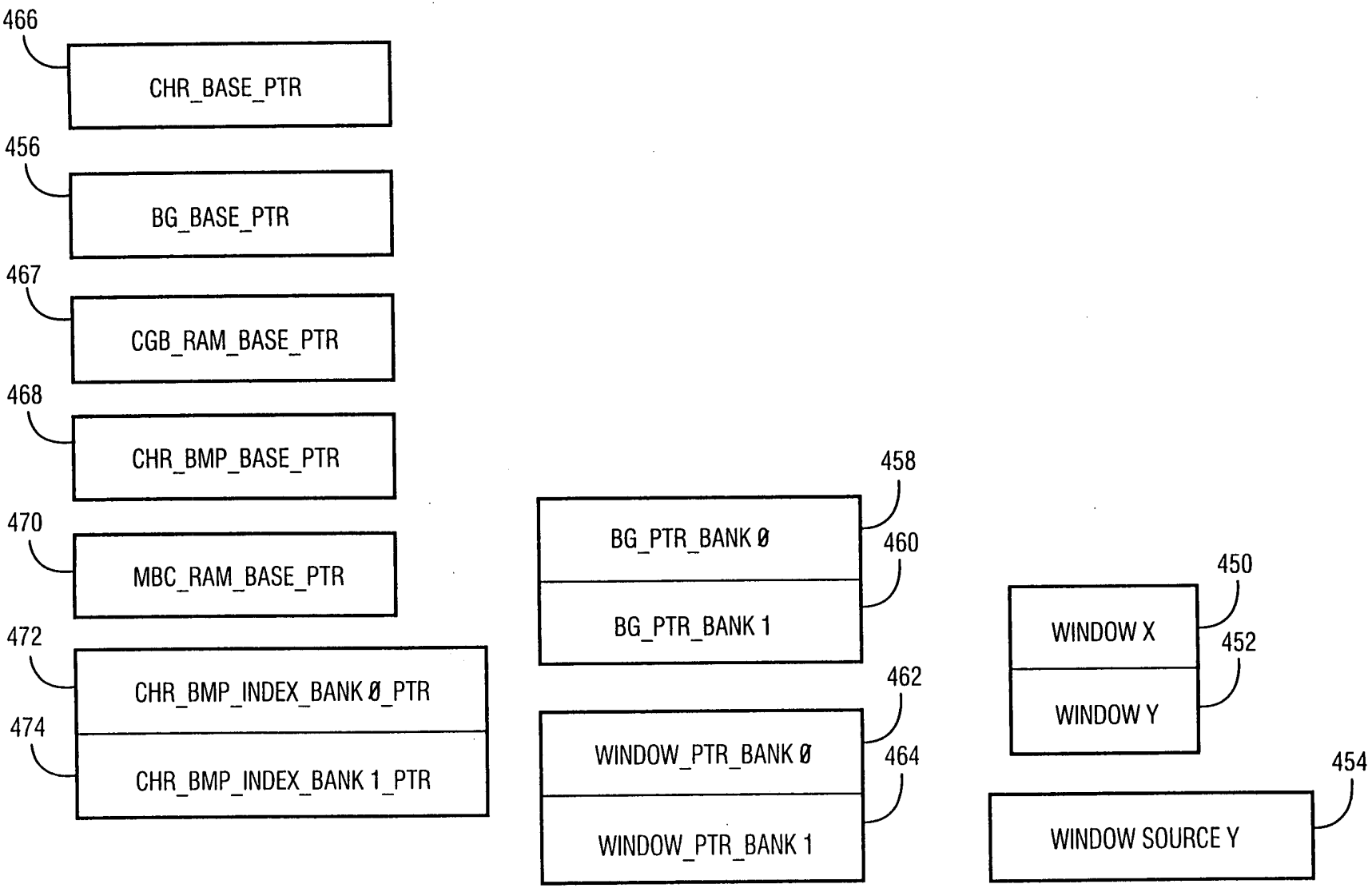


Fig. 23 EXAMPLE GRAPHICS OBJECT POINTERS

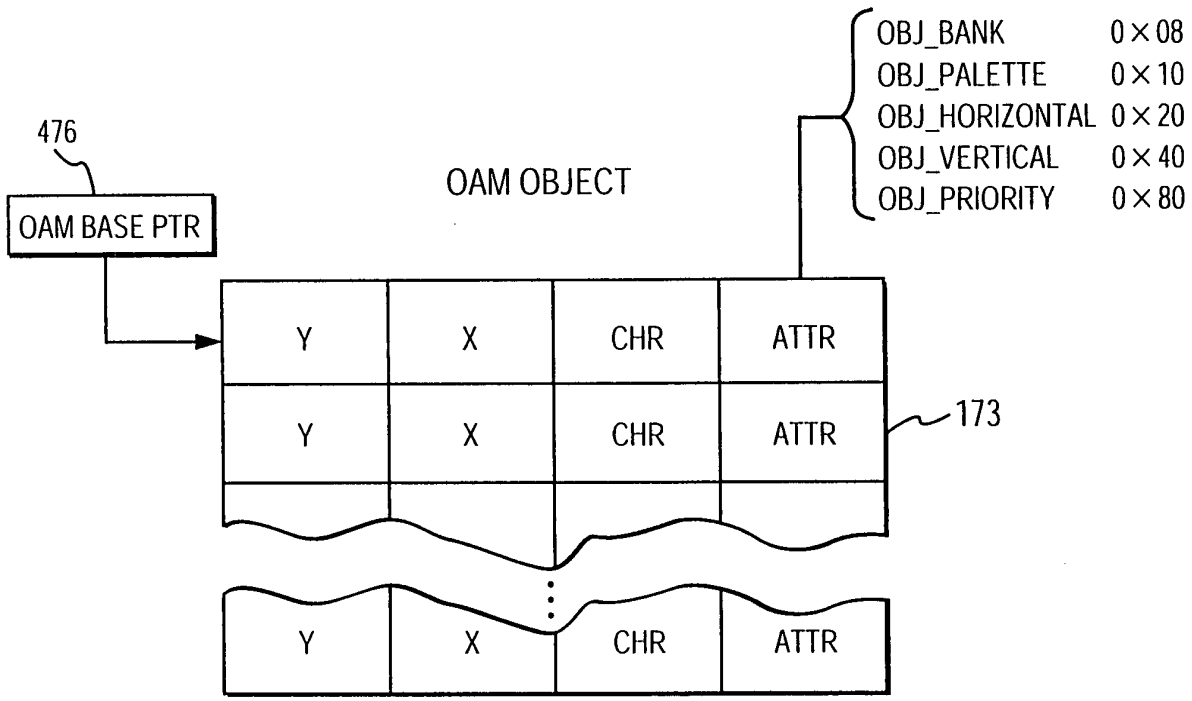


Fig. 24

EXAMPLE EMULATED OAM

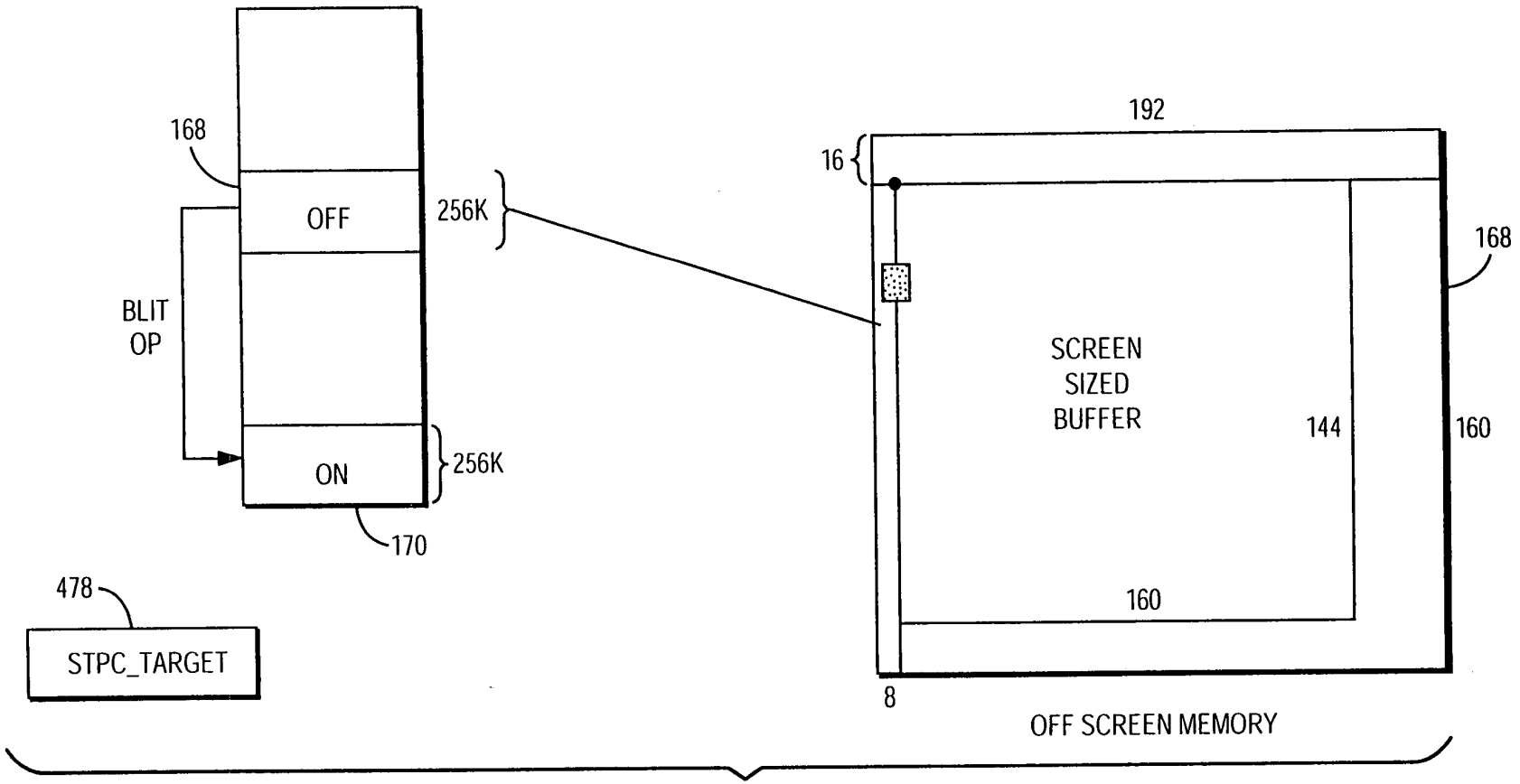


Fig. 25

EXAMPLE VIDEO MEMORY

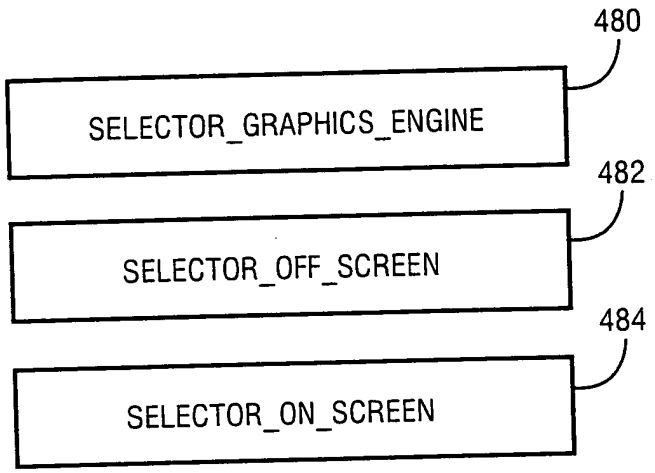


Fig. 26 EXAMPLE GRAPHICS MODE SELECTORS

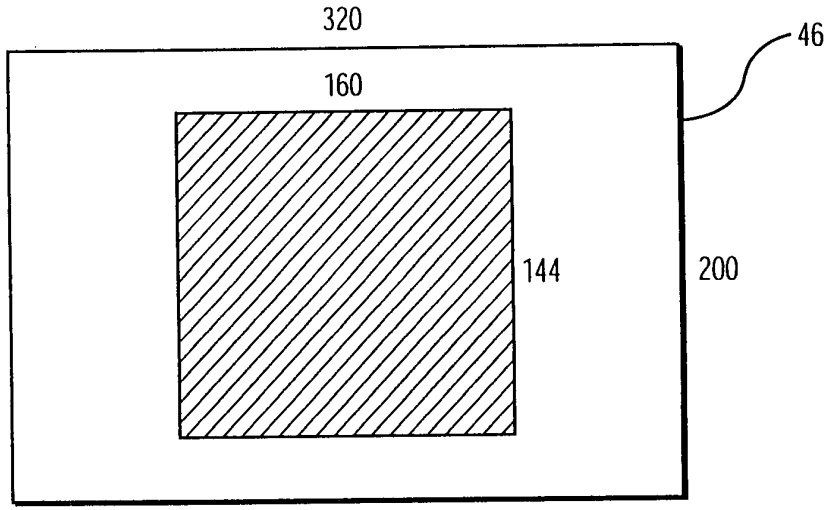


Fig. 27

EXAMPLE SCREEN LAYOUT

Fig. 28 EXAMPLE VGA MODE CONTROL

VIDEO_INT	0x10
SET_MODE	0x00
VGA_256_COLOR_MODE	0x13
TEXT_MODE	0x03
REGISTER_MASK	0x3C6
COLOR_INDEX	0x3C8
PALETTE_REG	0x3C9
INPUT_STATUS_1	0x3DA
VRETRACE	0x08

GE_DESTINATION_BASE	0x018
GE_DESTINATION_PITCH	0x028
GE_DESTINATION_XY	0x10000
GE_HEIGHT	0x048
GE_PIXEL_DEPTH	0x07C
GE_RASTER_OP	0x08C
GE_SOURCE_BASE	0x098
GE_SOURCE_PITCH	0x0AC
GE_SOURCE_XY	0x0BC
GE_WIDTH	0xC8

Fig. 29 EXAMPLE GRAPHICS ENGINE REGISTER INDEXES